

LISTING OF CLAIMS

1. (Previously Presented) A non-transitory computer-readable storage medium, comprising:
 - moving picture data comprising a plurality of playback routes;
 - a plurality of subtitle data items corresponding to the playback routes and configured to support a random search for a subtitle; and
 - mapping information configured to link the moving picture data and the subtitle data.
2. (Previously Presented) The non-transitory computer-readable storage medium of claim 1, wherein the subtitle data comprises:
 - reference offset information indicating reference information to randomly search for a subtitle of a desired time at a high speed and reproduce the subtitle,
 - text data comprising subtitle contents that are to be converted into pixel data and output,
 - style information specifying an output style of the pixel data, and
 - control information configured to control the output of the pixel data.
3. (Previously Presented) The non-transitory computer-readable storage medium of claim 2, wherein, by using information on a time elapsed from the reference offset information, the subtitle of a desired time is configured to be randomly searched for at a high speed among the subtitle data.
4. (Previously Presented) The non-transitory computer-readable storage medium of claim 3, wherein the reference offset information comprises at least one of a cell identifier (VOB_ID and CELL_ID) of a video object that is a recording unit of the storage medium, and a start position of a clip that is a recording unit of the storage medium.
5. (Previously Presented) The non-transitory computer-readable storage medium of claim 2, wherein the subtitle data is described in a form of a markup language or a binary table.
6. (Previously Presented) The non-transitory computer-readable storage medium of claim 5, wherein, in response to the subtitle data being described in the form of a binary table:

the style information, the control information, and the text information comprise respective identifiers for distinguishing each other,

the control information comprises information indicating the style information and the text information corresponding to the control information, and

the size of each of the style information and the control information is predetermined and sequentially recorded in a predetermined area.

7. (Previously Presented) The non-transitory computer-readable storage medium of claim 2, wherein the style information comprises at least one of: information items on the width and height of the pixel data area, a background color, a time when the pixel data is to be stored and deleted in a buffer memory, a starting point from which subtitle text is rendered, line spacing, output direction, bold type and Italic type of subtitle text, line break, color of subtitle text, and information on character code encoding.

8. (Previously Presented) The non-transitory computer-readable storage medium of claim 2, wherein the control information comprises at least one of: information items on an area on which the pixel data is to be output on an entire screen, a start point of subtitle text in the area, and a synchronization time indicating when the pixel data is to appear and disappear in synchronization with the moving picture data.

9. (Previously Presented) The non-transitory computer-readable storage medium of claim 8, wherein the synchronization time information is expressed as at least one of: a lapse time from a reference cell (CELL) of a video object (VOBU) that is reference offset information of the moving picture data, or as a lapse time from a start position of a clip that is reference offset information of the moving picture data.

10. (Previously Presented) The non-transitory computer-readable storage medium of claim 9, wherein the synchronization time information is expressed by using a present time stamp (PTS) time based on a reference time for reproducing moving pictures.

11. (Previously Presented) The non-transitory computer-readable storage medium of claim 1, wherein at least one of the subtitle data or the mapping information further comprises at least one of: font information describing a font of subtitle data to be displayed on a screen, information on a producer making the subtitle, packet identifier (PID) information of the subtitle data to distinguish from moving picture data, and subtitle indication information by language of the subtitle data.

12. (Previously Presented) An apparatus for reproducing a storage medium on which moving picture data having a plurality of playback routes is recorded, the apparatus comprising:

a decoder configured to decode the moving picture data having the plurality of playback routes; and

a subtitle processor configured to:

convert subtitle data corresponding to a selected route into pixel data, by using a plurality of subtitle data items corresponding to the plurality of playback routes and supporting a random search, and mapping information linking the moving picture data and the corresponding subtitle data;

synchronize the converted pixel data with the moving picture data; and

output the pixel data.

13. (Previously Presented) The apparatus of claim 12, wherein the subtitle processor comprises:

a text subtitle decoder configured to:

identify subtitle data corresponding to the moving picture data of a route to be reproduced by parsing the mapping information; and

convert the identified subtitle data into pixel data by parsing the subtitle data; and

a graphic controller configured to control the pixel data by using the parsed mapping information and subtitle data such that the pixel data is synchronized with the moving picture data and output.

14. (Previously Presented) The apparatus of claim 13, wherein:

the text subtitle decoder is further configured to:

parse:

reference offset information indicating reference information to randomly search for a subtitle of a desired time at a high speed to reproduce the subtitle, text data containing subtitle contents that are to be converted into pixel data, style information specifying an output style of the pixel data, and control information to control the output of the pixel data; and convert the text data into pixel data based on the style information; and the graphic controller synchronizes the pixel data with the moving picture data and outputs the synchronized moving picture data and pixel data using the parsed control information.

15. (Previously Presented) The apparatus of claim 14, wherein the text subtitle decoder is further configured to randomly search the subtitle data for the subtitle of a desired time at a high speed by using information on a time elapsed from the parsed reference offset information.

16. (Previously Presented) The apparatus of claim 15, wherein the graphic controller is further configured to control the converted pixel data to be synchronized with the moving picture data by using synchronization time information expressed as a lapse time from a reference cell (CELL) of a video object (VOBU) that is reference offset information of the moving picture data, or as a lapse time from a start position of a clip that is reference offset information of the moving picture data.

17. (Previously Presented) A method of reproducing data on a storage medium storing moving picture data having a plurality of playback routes, a plurality of subtitle data items corresponding to the playback routes and supporting random search for a subtitle, and mapping information linking the moving picture data and the subtitle data, the method comprising:

reading the subtitle data corresponding to moving picture data of a route to be reproduced by parsing the mapping information;

identifying subtitle data of a position to be reproduced according to continuous reproduction or reproduction by random search, by parsing the subtitle data, and converting the subtitle data into pixel data; and

synchronizing the pixel data with the moving picture data and outputting the pixel data.

18. (Previously Presented) The method of claim 17, further comprising combining the pixel data with the moving picture data to display subtitles on a screen.
19. (Previously Presented) The non-transitory computer-readable storage medium of claim 1, wherein the moving picture data of the each playback route and the corresponding subtitle data items are linked using a markup language.
20. (Previously Presented) The non-transitory computer-readable storage medium of claim 1, wherein the moving picture data and each playback route and the corresponding subtitle data are linked using a table.
21. (Previously Presented) The non-transitory computer-readable storage medium of claim 20, wherein the table comprises a binary table.